

A NOTE ON *PLASMODIUM AGAMAE*
(WENYON, 1908)

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Wenyon (1908) working in the Sudan, described a protozoon from the red cells of a lizard *Agama colonorum*, which had the following characters:

The smallest forms found in the red cells were oval or pear-shaped and contained no pigment, but larger immature forms containing brown pigment were also found; the sexual forms, microgametocytes and macrogametocytes, were sausage-shaped. The affected red cells were not altered in shape or size, but the nucleus was in some instances slightly displaced by the sexual forms of the parasites.

Schizonts were very few and only the early stages were found in the blood; in no case was a schizont found which had segmented into merozoites. Wenyon, therefore, assumed that multiplication took place in the internal organs after the manner of asexual multiplication, as described by Arago for *Halteridium* and he concluded that the parasite he found in *Agama colonorum* had affinities to *Halteridium* and suggested the name *Haemoproteus agamae*, Wenyon (1908).

It must be pointed out, however, that the animal from which Wenyon described his parasite was not heavily infected.

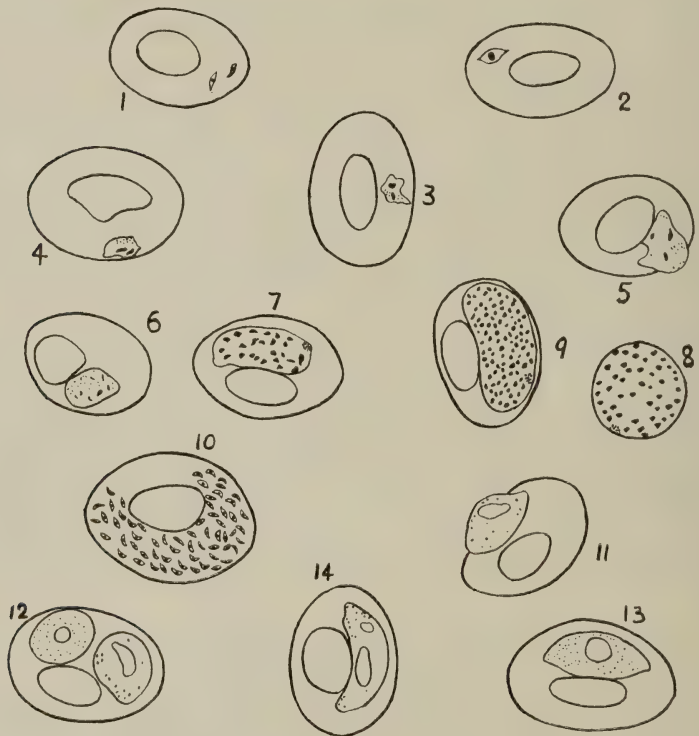
Todd and Wolbach (1912) reported and figured a pigmented haemocytzoon from *Agama colonorum*, which closely resembled the parasite described by Wenyon, but the small forms of the parasite were not found.

Macfie (1914) working in Nigeria, found in the blood of three lizards pigmented parasites which he considered to belong to the same species as those described by Wenyon.

The author found in Sierra Leone a specimen of *Agama colonorum* heavily infected with a pigmented haemocytosoon which appears to be the same species as that described by Wenyon under the name *Haemoproteus agamae*.

Asexual forms, trophozoites and schizonts, were numerous, and it was found that schizogony takes place in the red cells in the peripheral blood. The parasite, therefore, has no affinities to *Halteridium*, but is in fact, a *Plasmodium* and its name should be *Plasmodium agamae* (Wenyon, 1908).

The parasite was studied in smears, and the following points were noted. The smallest forms found in red cells are minute, and



FIGS. 1 and 2. Young trophozoites in a red cell.
 FIGS. 3, 4 and 5. Amoeboid forms with several masses of chromatin.
 FIGS. 6—9. Further stages of schizogony.
 FIG. 10. Schizont which has segmented into merozoites.
 FIG. 11. Young microgametocyte, partly outside the red cell.
 FIG. 12. A red cell containing a young microgametocyte and a young macrogametocyte.
 FIG. 13. A macrogametocyte.
 FIG. 14. A microgametocyte. $\times 1200$.

spindle-shaped, and contain no pigment (figs. 1 and 2). Slightly larger forms are found, very irregular in shape, containing fine granules of pigment and two or more nuclear masses (figs. 3 to 5). Such forms are commonly found in the red cells, but they may also occur either free or partially in the red cells. It seems, therefore, that trophozoites and young schizonts can travel from one red cell to another, unless the free or partially free forms are due to an artifact. Multiple infection of the red cell is common. As the schizont increases in size the nucleus of the red cell is displaced.

The pigment tends to be extruded from the schizont during its growth (fig. 7), and the mature schizont may contain no pigment at all; the mature schizont contains about seventy merozoites.

The young sexual forms are round or ovoid and are found both free and in the red cells. A few instances were noted in which a young sexual form was found partly inside and partly outside a red cell (fig. 11).

The mature sexual forms are crescentic in shape and seldom displace the nucleus of the red cell (figs. 13-14).

The macrogametocyte stains deep blue with Giemsa, its pigment granules are very fine and are uniformly scattered throughout the protoplasm. The microgametocyte stains pale blue with Giemsa, its pigment is coarser than that of the macrogametocyte and tends to be distributed round the rim of the parasite. The protoplasm of the microgametocyte was in several instances observed to be vacuolated (fig. 14).